

Basil Bernstein as an inspiration for educational research
Specific methodological approaches

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INTRODUCTION

This article clarifies and discusses the research methodology inspired by Basil Bernstein that has guided the extensive studies carried out by the ESSA Group (Sociological Studies of the Classroom) at the University of Lisbon. We discuss how we have used Bernstein's theory (1990, 2000) to develop this methodology and we highlight the characteristics of a "mixed methodology", which is applicable to various contexts of educational research. We will start by presenting the epistemological positioning of the research and show the contribution of the methodology to knowledge production in the fields of both education and research methodologies. We will refer to philosophical and sociological aspects of knowledge construction and to the validity and reliability criteria we have used in our research methodology.

We discuss the way we have used Bernstein's theory in developing the research through a conceptual structure that explains the relations used in the construction of models and instruments of analysis of texts and contexts. We describe the paths we have followed in that construction and explicate the theoretical assumptions and the methodological procedures that have guided their conception. Finally, we present some exemplary cases to illustrate our procedures.

Since the article discusses earlier research in some detail ¹, it may be of more interest to those acquainted with that research. However, we believe that the text may appeal to a larger audience.

EPISTEMOLOGICAL POSITIONING OF THE RESEARCH

Quantitative and qualitative paradigms

The two forms of inquiry – quantitative and qualitative - are often viewed as distinct and incompatible paradigms in educational research (Shaffer & Serlin, 2004). However, it has also

been recognized that distinct methods of analysis are useful for addressing distinct types of questions. For that reason, both techniques are now often used simultaneously. For example, Tashakkori and Teddlie (1998) refer to studies where quantitative and qualitative techniques are used in the same or distinct stages of the same study and assume an equal or different status when research questions are defined. These researchers explain how quantitative analysis can help in identifying subjects for a qualitative study, how qualitative interviews can provide additional elements to quantitative analysis, how qualitative analysis can generate hypotheses for quantitative studies and how quantitative and qualitative data can be obtained simultaneously. As Shaffer and Serlin (2004) state:

Qualitative and quantitative methods are both, ultimately, methods to warrant presentation of a fair sample. They are both attempts to project from a finite set of information to some larger population: a population of like individuals in the case of typical quantitative inquiry, or a collection of like observations in qualitative analysis. [...] The goal in any analysis is to match technique to inference, claim to warrant. The questions facing a researcher are always: What questions are worth asking in this situation? What data will shed light on those questions? And what analytical methods will warrant data-based claims about those questions? Answering these questions is a task that necessarily involves a thorough understanding of the strengths and weaknesses of a range of quantitative and qualitative techniques. (p. 23)

Similarly, Flyvbjerg (2001) problematizes the dichotomies created by the two approaches:

If not meaningless, it is counterproductive to meaning to speak of 'the victory of signs over difference' or of rules over the particular. [...] To amputate one side in these pairs of phenomena into a dualistic 'either-or' is to amputate our understanding. Rather than the 'either-or', we should develop a non-dualistic and pluralistic 'both-and'. Hence, we should not criticize rules, logic, signs, and rationality in themselves. We should criticize only the dominance of these phenomena to the exclusion of others in modern society and in social science. Conversely, it should be equally problematic if rules, logic, signs, and rationality were marginalized by the concrete, by difference, and by the particular. [...] (p.49)

In our research we have assumed that the two forms of inquiry are not incompatible and therefore can be used sequentially or simultaneously, depending on the kind of research questions we want to address and the data we want to obtain. Our research thus departs from the dichotomy between naturalistic approaches (qualitative or ethnographic) and rationalistic approaches (quantitative or experimental) and reflects an epistemological positioning that rejects, in particular, the strongly contextualised and idiosyncratic character of qualitative methodologies, guided by postmodernist perspectives in educational research.

The research in the framework of research methodologies

As we have explained (Morais & Neves, 2001; Morais, 2002), our research methodology has used an external language of description derived from an internal language of description, whereby the theoretical and empirical are viewed dialectically. We reject both the analysis of the

empirical without an underlying theoretical basis and uses of theory which do not allow for its transformation on the basis of the empirical. Theories/concepts in the areas of epistemology (e.g. Popper, 1968; Ziman, 1984), psychology (Bruner, 1973; Vygotsky, 1978) and sociology (Bernstein, 1990, 2000) have constituted our main internal languages of description, with particular emphasis on Bernstein's theory of pedagogic discourse. On the basis of this theory, we have constructed an external language of description in order to originate models and instruments to guide the research.

The research methodology may be viewed as a mixed methodology, which does not integrate the two forms of inquiry but, on the contrary, uses characteristics associated with each of them. Figure 1 presents aspects of quantitative and qualitative approaches present in the methodological procedures of our research.

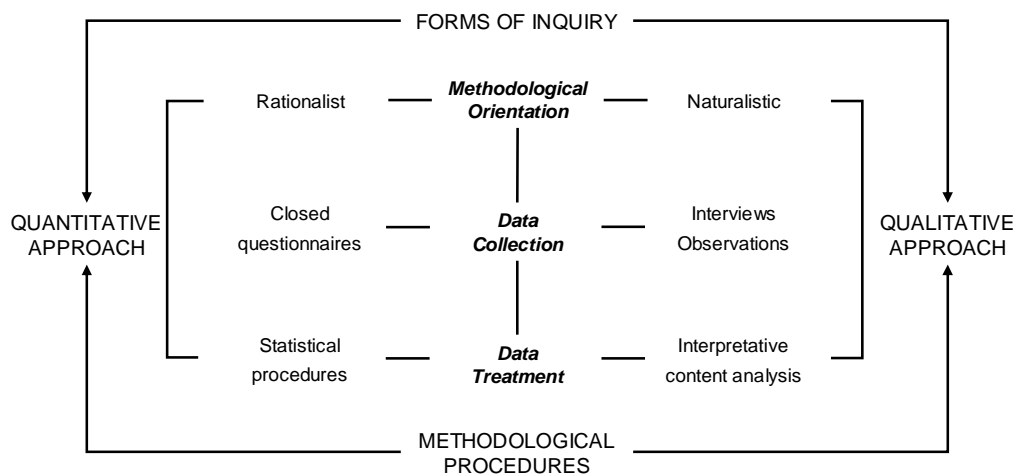


Figure 1 - Epistemological positioning of the research

The *methodological orientation* has a fundamentally rationalist basis (a characteristic of quantitative approaches) when, for example, we construct models for data analysis on the basis of previous theoretical frameworks. This orientation has allowed us to explore hypotheses on the basis of the guiding theory (experimental hypotheses). However, we have also used a methodological orientation of a naturalistic character (a characteristic of qualitative approaches) when, for example, the indicators and descriptors used in the instruments derived from the models are fundamentally obtained from direct observation of the contexts under study. This more naturalistic approach has allowed the formulation of hypotheses on the basis of empirical data (explanatory hypotheses).

With regard to data collection, we have also used methodological procedures associated with the two forms of inquiry. In fact, for example, together with closed questionnaires (a characteristic of quantitative approaches) we have used more open modes of questioning as in the case of interviews and observations (a characteristic of qualitative approaches). Also at the level of data analysis, we have used quantitative methods (statistical procedures) and qualitative methods (interpretative content analyses).

If we consider other positionings distinct from the two traditional paradigms of educational research, the typology of educational inquiry presented by Constan (1998) can also be useful to situate the research methodology that we have developed. According to this typology, constructed on the basis of the interaction of three dimensions – *political*, *methodological* and *representational* - it is possible to consider a number of research prototypes. The *political* dimension of inquiry is present when political issues are investigated and incorporated (as givens) into a particular study and when the effect that power relations may have in the research is analysed and challenged. The *methodological* dimension of inquiry refers to strategies related to the procedures of data collection (in the case of empirically based educational research) and to argumentation techniques (in the case of theoretically based educational research). The *representational* dimension refers to the nature of academic discourse (writing style, lexicon and discourse organization).

If we take Constan's typology as the reference, we can say that our research departs from narrative and post-modernist research prototypes, which are methodologically idiosyncratic and representationally unbounded. The research we have developed corresponds, to a certain extent, to the research prototype that Constan calls *neo-Marxist inquiry*, and that is characterized by being politically *decentered*, methodologically *normative* and representationally *bounded*. In fact, when we use methodological approaches that are concerned with criteria of validity, reliability and generalization and a writing style that intends to be objective, the research we have developed is clearly normative and bounded. It also represents a politically decentering variety of educational research because, although our research includes aspects of an inquiry guided by psychological assumptions, it carries a strong sociological basis where power relations are taken as a fundamental component. From another point of view, we may consider that our research has some relation to the research prototype that Constan calls *post-positivist inquiry*, which differs from the former in that it corresponds to a non-political (centering) variety of educational research. To chose one or other position depends on taking for granted power

relations, without making them enter in the analyses (as in the case of *post-positivist inquiry*), or considering them as fundamental factors in problematizing the study (as in the case of *neo-Marxist inquiry*).

The research and knowledge production

Another fundamental aspect of our research is that its aim is the production of educational knowledge that, although being part of the area of social sciences, is embedded in the knowledge of the area of experimental sciences. In fact, most of the research is centred on science education and, therefore, its object of study is the *how* of learning (seen in terms of the social relations that characterize various pedagogic contexts) of a knowledge that is part of the experimental sciences (*the what* of learning). This means interrelating scientific areas with distinct or even opposed structures of knowledge. As Morais (2001) says:

Experimental sciences are hierarchical structures of knowledge. Theories of instruction are horizontal structures of knowledge. That is to say that the *what* to be taught in science classes is quite distinct in its structure from the *how* to be taught. (p. 32)

Our research methodology has permitted us to reconcile the apparently irreconcilable, which has been possible because Bernstein's sociological theory, in which our research is fundamentally based, has "a very strong conceptual structure which places it [...] within the horizontal structures of knowledge of strong grammars and even, [...] in many aspects, within a hierarchical structure of knowledge" (Morais, 2001, p. 33).

From a philosophical point of view, the research has used a fundamentally rationalist approach and, therefore, departs from the research that characterizes the construction of a substantial part of knowledge in the area of social sciences, which tends to be based on descriptive and narrative methodologies by following naturalistic and ethnographic approaches. In our research we have tried to produce educational knowledge characterised by a strong grammar rather than by a weak grammar. That is, the new knowledge is progressively more conceptualized and broader instead of being added to previous knowledge. This conceptualization has also occurred in the production of knowledge at the level of the research methodology itself. Thus, our research has led to the production of two types of knowledge: educational knowledge (research product) and knowledge in the area of the research methodologies (research process).

When we consider the research not only with regard to the philosophical dimension of knowledge production, but also to its internal and external sociological dimension², some issues can be raised related to the legitimation of ideas at both the levels of research methodology and the knowledge obtained.

The research has blurred the boundaries between fields of educational knowledge that traditionally have been strongly classified, as in the case of sociology of education and science education. For this reason it has introduced in the academic community an unusual perspective in both the area of science education and the area of sociology of education. This raises issues related to the internal sociological dimension of knowledge production. We refer to the status that the academic community can accord to the research and, consequently, the use (or not) of our research methodology to promote the development of an external language of description and, even, to some extent, of the internal language in which the former is grounded.

Although our research has gained some acceptance in the area of sociology of education, it has been less accepted by the academic community in the area of science education. The fact that the educational knowledge we have constructed is mainly placed in the area of science education, together with the fact that the research methodology corresponds to an approach closer to that followed in the experimental sciences (when compared to the social sciences), has led us to believe that the lesser acceptance of the research by the science education community may be related to the low status that it accords to sociological knowledge rather than to our type of research methodology. In the case of the sociology of education community, that community may be inclined to accept our research more willingly because it represents one more approach (another language) in a field characterized by a horizontal structure of knowledge with multiple languages of description. However, another kind of problem arises here, which is related to the research methodology we have followed.

In terms of the external sociological dimension, our research seeks to consider the more general social contexts of education and the way in which its research findings may be used in the field of educational policy, thus establishing a relation with the world outside the academic community. However, there is still a long way to go when this dimension of research is considered. An investment is needed to make the results of the research and the knowledge constructed on the basis of those results available to people outside of the academic community, specifically in the area in which we have been working. The success of this type of dissemination

requires entering a space that is dependent on the status that is given by society to this type of research and to the respective researchers. The relation between the academic community and society, which is part of the external sociological dimension of the construction of knowledge, may exert some pressure on educational policymakers but also accord more status to the research and as a consequence facilitate access to new sources of funding. To ignore or minimize the importance of the internal and external sociological dimensions of the construction of knowledge, in any of its expressions/manifestations, may constitute an obstacle to the development of research whose fundamental objective is the advancement of knowledge.

As Flyvbjerg says,

[...] we must effectively communicate the results of our research to fellow citizens. If we do this, we may successfully transform social science from what is fast becoming a sterile academic activity, which is undertaken mostly for its own sake and in increasing isolation from a society on which it has little effect and from which it gets little appreciation. We may transform social science to an activity done in public for the public, sometimes to clarify, sometimes to intervene, sometimes to generate new perspectives, and always to serve as eyes and ears in our ongoing efforts at understanding the present and deliberating about the future. We may, in short, arrive at a social science that matters. (2001, p. 166)

These epistemological considerations about our research involve aspects that seem to be related to what Moore and Maton (2001) refer to as the epistemic relation and the social relation of knowledge. As presented by these researchers,

The epistemic relation [of knowledge] is the relation between knowledge and that part of the world of which knowledge is claimed (its proclaimed object of study). The social relation [of knowledge] is between knowledge and its author, the subject making the claim to knowledge. Languages of legitimation are conceptualised in terms of the strength of boundaries around (classification) and control over (framing) what knowledge may be claimed and how (epistemic relation), and who may claim knowledge (social relation). (2001, p. 165)

The knowledge we have produced in the area of education, namely in science education, derives from conceptual models that are applicable to diverse situations/contexts: teacher education, classroom practices, family practices, scientific learning, curriculum texts. These models have guided the construction of instruments, according to methodological procedures described below.

Validity and reliability criteria of the research

When discussing the epistemological positioning of a research study, it is important to consider validity and reliability criteria. As we have mentioned, our investigative approach, although having a rationalist basis, follows a methodology that integrates qualitative features. We will

now demonstrate what we have done to ensure validity and reliability in the qualitative dimension of the research.

The systematic dialectic between the theoretical and the empirical that has characterized our research methodology has allowed us to guarantee criteria of both internal validity and external validity. The fact that the research is sustained by a theoretical framework of great rigour and explanatory power is fundamental to guarantee internal validity. Internal validity has also been achieved by: (a) consistency between the objectives of the research and data collection; (b) the successive reformulations of the models and instruments we have used, in order to increase the adjustment of the relation between the objectives of the research and the data to be obtained; (c) the use of a long period of observation; (d) continual personal interaction between the researcher and the subjects; (e) the comparison of data obtained from various sources (triangulation), including data from similar studies. External validity has been achieved by the transfer of results to other contexts and by making analytical generalizations when we formulate working hypotheses that will be transferred to similar contexts.

With regard to reliability, the presence of a theoretical framework to guide the research has allowed observations to be conducted in a way that is consistent to the theoretical aspects of the research. To reinforce reliability, data have been analysed by multiple researchers, all familiar with the theoretical framework. Also we have used various techniques to obtain data (triangulation). In order to guarantee one of the fundamental criteria of reliability in a qualitative approach, constancy in the application of principles (e.g., standardization of rules of analysis, treatment and interpretation of data) has been assured, to the extent possible, by the explication of the various stages of the research.

MODELS AND INSTRUMENTS

Following this research methodology, we have constructed models and instruments for various contexts and levels of pedagogic analysis and intervention and we have focused on various objects of study. These models and instruments have been used: (a) to analyse the relations that characterise pedagogic practices in school and family contexts and the modalities of teacher education (e.g., Morais & Neves, 2001; Neves, Morais & Afonso, 2004; Neves & Morais, 2005); (b) to evaluate students' specific coding orientation and positioning, in general and specific learning contexts, and to evaluate teachers' specific coding orientation in contexts of pedagogic

intervention (e.g., Morais & Neves, 2001; Morais, Neves & Afonso 2005); (c) to appreciate the ideological and pedagogical messages and their recontextualisation at the various levels of curriculum development (e.g., Neves & Morais, 2001).

In order to explicate the theoretical assumptions and the methodological procedures that we have adopted in the conception and application of the models and instruments used in the research, we will now show how those assumptions and procedures reflect the epistemological positioning of the research. To illustrate these aspects we will refer to models related to texts and contexts that have been the object of analysis in our research (monologic text/closed text, dialogic text/open text, and contextual performance).

Theoretical assumptions and methodological procedures

As mentioned earlier, the general framework of our research follows a methodological approach, fundamentally supported by a sociological matrix based on Bernstein's theory. For that reason, the concepts and ideas suggested by the theory have guided the selection and construction of categories of analysis. Furthermore, the research has been guided by theory and/or results of previous studies, which have suggested hypotheses to be tested. However, our research is also part of a qualitative paradigm, for reasons not only related to the small size of most of our samples but also by the contextual nature of most objects of study. In addition, the fact that we have selected and constructed indicators and categories based on previous readings (the case of monologic texts) and observations (the case of dialogic texts and contextual performances) of the texts and contexts under study, introduces a methodological dimension characterized by content analysis, more associated with qualitative approaches. However, since the system of categories and indicators of analysis is a result of an articulation between the theoretical and the empirical, those content analyses present a less subjective character, more distanced from a process of inductive research. In summary, models and instruments are constructed on the basis of a methodological orientation that combines aspects of the two research paradigms (quantitative and qualitative), through the development of an external language of description that is the result of a constant dialectic between the concepts provided by the theory (internal language of description) and the empirical data 'observable' in the contexts under analysis.

Figure 2 shows the relations considered in the construction of the instruments of analysis of text and contexts.

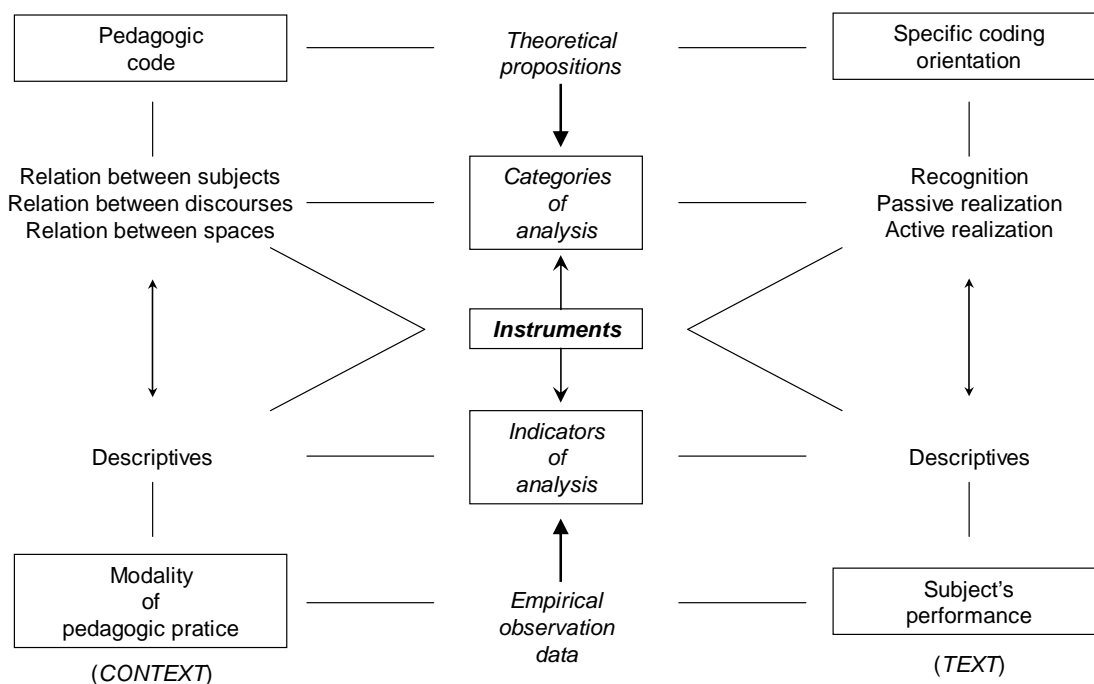


Figure 2 – Relations used in the construction of instruments of analysis of texts and contexts

In the case of the instruments of analysis of modalities of pedagogic practice, the categories of analysis derive from theoretical propositions based on the concept of pedagogic code. According to this concept, we considered, as categories of analysis, the relations between subjects, the relations between discourses, and the relations between spaces. Within these categories, we constructed subcategories of analysis. For example, within the relations between subjects, we have taken as subcategories of analysis the discursive rules of selection, sequence, pacing and evaluation criteria. These categories and subcategories are operationalized through descriptors of the interactional contexts under study (instructional and regulative practices in schools/classrooms, family and teacher education)³.

Instruments of analysis of subjects' performance in interactional contexts have been constructed by using categories of analysis derived from theoretical propositions based on the concept of specific coding orientation. Based on this concept we have analysed the categories of *recognition*

rules and *realization rules*, *active* and *passive*, and their subcategories. For example, within recognition rules, we have taken as subcategories of analysis the recognition of the scientific content and the recognition of competences involved in the micro-contexts of scientific learning. Each of the categories and subcategories is operationalized, in the instruments, through descriptors of the text produced by the subjects in a given context – for example, students' performance in the micro contexts of scientific or social learning, teachers' performance in the contexts of initial and in-service education⁴.

In both cases – analysis of modalities of pedagogic practice and analysis of subjects' performances – descriptors are constructed by considering both the indicators of analysis that derive from the data from empirical observation and the categories of analysis suggested by the theory; they vary according to the texts and contexts under study. They describe the modalities of pedagogic practice or specify the performance in terms of the theoretical framework that supports the analysis, making visible the invisible and explaining and exploring the meaning of the invisible through the visible.

The central part of the model of Figure 2 represents the conceptual structure of our research methodology. It may be used in other research studies provided the analyses of that research are guided by theory.

Exemplary cases

To illustrate the procedures used in the construction of instruments, we provide a case related to the analysis of the modality of pedagogic practice and another related to the analysis of a subject's performance. The example of the modality of pedagogic practice relates to the school context in the classroom situation and the example of the subject's performance relates to a teacher's performance in the context of in-service education. We also present a case that relates to the analysis of monologic texts (curriculum texts).

Modality of pedagogic practice in the school context

In order to construct the instruments of analysis of the modalities of pedagogic practice that characterize the interactions taking place in the context of school/classroom, family and teacher education, we constructed the model seen in Figure 3.

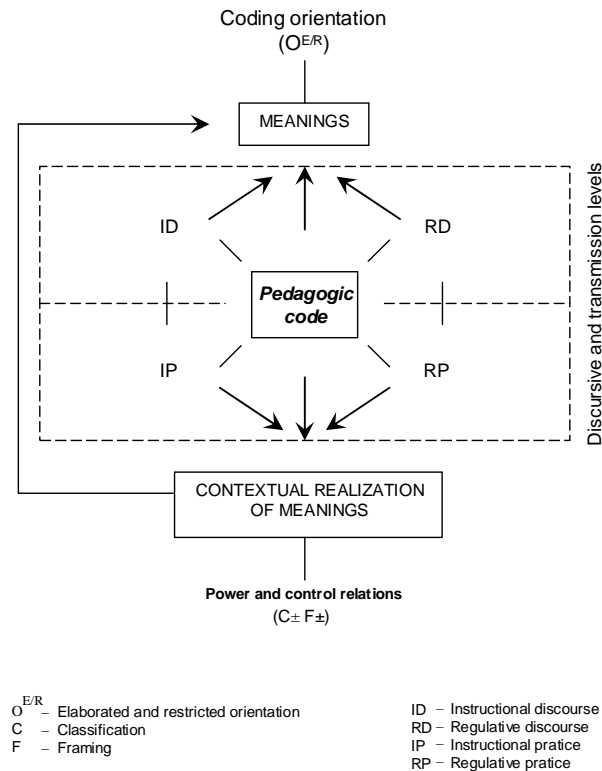


Figure 3 – Model of analysis of modalities of pedagogic practice

The model is based on Bernstein's idea that any pedagogic interaction (as with the case of school, family and teacher education contexts) is characterized by power and control relations which institutionalize elaborated or restricted coding orientations ($O^{E/R}$) and which can be analysed, respectively, in terms of the concepts of classification and framing. In this way, the pedagogic code present in a given context of pedagogic interaction is defined by the coding orientation and the power and control relations that characterize the contextual realization of meanings. The pedagogic code expresses itself through the instructional (ID) and regulative (RD) discourses and through the instructional (IP) and regulative (RP) practices, therefore translating the discursive and transmission levels of the interactional context.

Using classification and framing as conceptual instruments of analysis of power and control relations that characterize the modalities of pedagogic practice in the school context, and specifying these relations in terms of the multiple aspects that constitute the relations among subjects, discourses and spaces, we constructed, on the basis of the model, a set of categories and subcategories to guide the analysis of these relations. The discursive rules of selection, sequence,

pacing and evaluation criteria and the hierarchical rules may be seen as subcategories that define the teacher-student relation, within the category relations between subjects. Interdisciplinary, intradisciplinary and academic and non-academic knowledge are subcategories that define the category relations between discourses. The relation between teacher's space and student space and the relation between the spaces of the various students are subcategories that define the category relations between spaces. The instruments constructed for the analysis of the modalities of the pedagogic practice refer to each of these categories. For the analysis to take into account the specificities of the contexts under study, the indicators which are part of those instruments were created on the basis of real situations observed in these contexts. The descriptors used to specify each of the degrees of the classification and framing scales, regarding each indicator, were also constructed on the basis of situations that could occur in the interactions under study.

Let us consider, an instrument used in the analysis of the pedagogic practices implemented in the primary school, which is centred on the discursive rule *evaluation criteria* (one of the subcategories of analysis which refer to the category "relations between subjects: teacher-student"). On the basis of data from empirical observation, we defined the following indicators to guide the analysis: *Exploring themes/problems under study*; *doing tasks/activities*; *making syntheses*; *discussing tasks/activities*; *asking questions*; *making records on worksheets*; *students' incorrect utterances*. The three first indicators refer to situations more directly related to general aspects of the instructional context of the pedagogic practice (macro level of analysis); the other indicators refer to situations more directly related to specific aspects of that context (micro level of analysis). The instrument of analysis contains, for each indicator, descriptors constructed on the basis of a scale of four degrees of framing. The descriptors that refer to each degree of the scale were the result of a dialectic between data obtained from observation of classroom real situations (for each indicator) and the theoretical propositions about the meaning of evaluation criteria in terms of framing.

To illustrate the various components of analysis, contained in the instrument, we are showing, for one category of analysis, and for one indicator, the descriptors that refer to the various degrees of the scale of framing.

CATEGORY OF ANALYSIS – *Evaluation criteria*

INDICATOR – Students' incorrect utterances

DESCRIPTORS

. Student's statement is reformulated/corrected/completed in detail (F⁺⁺).

- . Student's statement is reformulated/corrected/completed, but completed only in general terms (F^+).
- . The incorrect statement is pointed out to the student, but no reformulation is made (F^-).
- . Student's statement is neither corrected nor reformulated (F^{\cdot}).

Teachers performance in the context of in-service teacher education

Figure 4 shows the conceptual model we used for this analysis, which was developed to guide the construction of instruments to collect and analyse data about the specific coding orientation of subjects (teacher, student) in contexts of interaction (teacher educator – teachers, teacher – students)⁵.

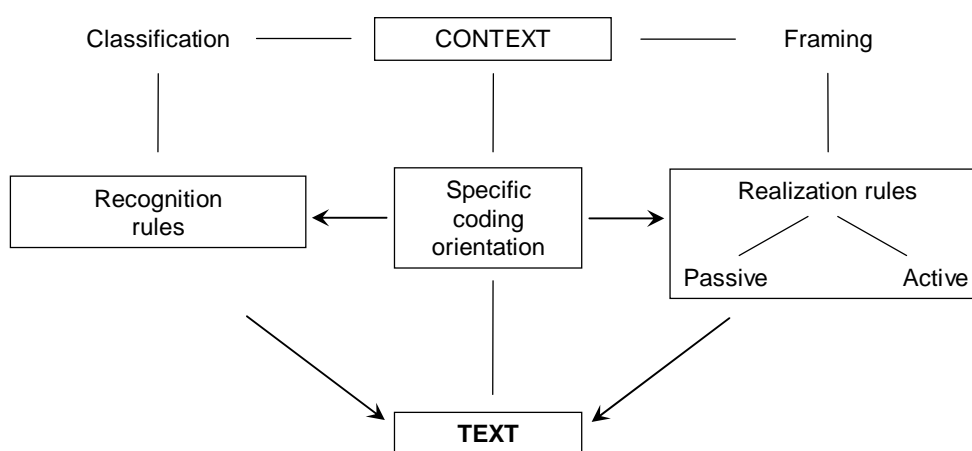


Figure 4 – Model of the analysis of the specific coding orientation as the regulator of the production of the text in context

According to this model, the subjects' possession of the specific coding orientation to a given context, needed to produce the text appropriate to that context, involves the possession of recognition rules and realization rules, passive and active. Recognition rules allow recognition of the context while realization rules allow selection of the meanings (passive realization) and production of the text appropriate to the context (active realization). Recognition relates to classification because to distinguish one context from other contexts means to recognize its degree of insulation. Realization relates to framing because to select the meanings and produce a text appropriate to a context means communication adequate to specific social relations.

On the basis of this model we constructed instruments for the analysis of teachers' performance in the context of in-service teacher education, that is, semi-structured interviews and instruments for classroom observation. Following this conceptual model, we obtained data about teachers'

specific coding orientations to implement a given pedagogic practice in the classroom. The interviews were constructed to obtain data about recognition and passive realization to the various characteristics of the pedagogic practice. We wanted to know the extent to which the teacher valued each of the characteristics (recognition). We also wanted to know the teacher's principles underlying such valuing and how s(he) would act to put the characteristics into practice in the classroom (passive realization). The instruments were constructed to obtain data about active realization, that is, how the teacher implemented the pedagogic practice in its various characteristics.

Let us take as an example the section of an interview related to the recognition and passive realization rules, when these rules were analysed with reference to the characteristic of the pedagogic practice *evaluation criteria*. The teacher was asked: *When children have to do and present some work, do you think that the teacher should explicate to them what they have to do and how it should be done, or should this be left to children's own criteria? Justify. How would you act in the classroom?* The teacher's answers, not only to these questions but also to questions related to the various characteristics of the pedagogic practice, allowed the construction of the following analytical indicators: valuing of the characteristic of the practice under analysis (in the case of recognition rules); the principles that grounded the valued characteristic and the ways of acting to put into practice the valued characteristic (in the case of passive realization rules). The descriptors indicate the nature of the answer (text) given by the teacher to each of the indicators and allow the evaluation of that text, in terms of the category under analysis (recognition or passive realization).

To illustrate the various components of analysis, we show the indicator and respective descriptors for the recognition rules related to the characteristic of the pedagogic practice *evaluation criteria*.

CATEGORY OF ANALYSIS - *Recognition rules*

INDICATOR – Valuing given to the explicating of the evaluation criteria

DESCRIPTORS

- . The teacher gives a high valuing to the clear explicating of the evaluation criteria, that is, s(he) values a pedagogic practice with strong framing regarding this characteristic.
- . The teacher gives a low valuing to the explicating of the evaluation criteria, that is, s(he) values a pedagogic practice with weak framing regarding this characteristic.

These descriptors reflect two extreme situations presented in the interview questions. The situations were established on the basis of data obtained from observing teachers' practice in the classroom. Taking as the reference research results that have indicated evaluation criteria of very strong framing as a characteristic favourable to students' learning, the first descriptor shows the possession of recognition rules and the second shows absence of those rules, for that characteristic of the pedagogic practice.

Pedagogic message in curriculum texts

The relations shown in Figure 2, which were explicated for the case of the analysis of subjects' performance in specific contexts and the analysis of modalities of pedagogic practice, may be applied to the case of the analysis of curriculum texts (monologic texts). We used the model of analysis of modalities of pedagogic practice (Figure 3), as it is possible and desirable to apply to the analysis of monologic texts a conceptualization parallel to the analysis of dialogic texts. It is possible because the conceptual and transference power of the internal language of description that characterizes Bernstein's theory⁷ allows the application of the concepts derived from the theory to various levels of educational analysis and various analytical contexts. It is desirable because the use of a same model allows comparisons between texts produced at various levels of the educational system to acquire a greater conceptual and methodological rigour.

The instruments constructed on the basis of this model to analyse curriculum texts, therefore, contained categories of analysis similar to the categories used in the analysis of the pedagogic practice in the classroom: (a) intradisciplinary and interdisciplinary relations and relations between academic and non-academic knowledge; and (b) teacher-students relations in terms of the theory of instruction. In this case, the instruments were used to analyse the message of curriculum texts in terms of the modality of the pedagogic practice valued by those texts. However, considering the specificity of the contexts in which the texts under study (syllabuses, textbooks) are produced, the instruments have also included, as categories of analyses of the relation between subjects, the relation between the authors of curriculum texts and the users of those texts such as, for example, the relation between the Ministry of Education, as the author of syllabuses, and the textbooks' authors and the relation between them and the teachers. In this case, the instruments have been used to analyse how texts' authors explicate both the pedagogic message contained in the texts and the foundational principles of this message. Through this analysis, it has been possible to infer the space of autonomy that is allowed to textbook authors

and to teachers to reproduce/recontextualize the message present in the curriculum texts under study.

Let us take, as an example, an instrument used in the analysis of the syllabi of natural science for middle school; this analysis is centred on *intradisciplinary relations*. According to the discursive components present in the syllabus (that in this case constitute the data of empirical observation), we defined as indicators to guide the analysis the most representative components of the discourse of the syllabus: *Knowledge; aims; methodological guidelines; and evaluation*. The instrument of analysis contained these indicators and for each indicator descriptors for a four-degree scale of classification, taking as the value of classification the degree of insulation between the various knowledges of the discipline. The descriptors that refer to each degree of the scale were the result, in this analysis, of the dialectical relation between the data obtained through the reading of the text of the syllabus, with regard to each indicator, and the theoretical propositions about the meaning of intradisciplinary relations in terms of classification.

To illustrate the various components of analysis contained in the instrument, we are specifying to the category of analysis under study, and to one indicator, the descriptors that refer to the various degrees of the scale of classification.

CATEGORY OF ANALYSIS – *Intra-disciplinary relations*

INDICATOR – Methodological orientation

DESCRIPTORS

- . The strategies/methodologies suggested include the relation between content knowledge of a simple order⁸ within the same theme *or* the absence in the strategies/methodologies suggested of the scientific knowledge necessary to the understanding of the relation between knowledges within the same theme (C⁺⁺)
- . The strategies/methodologies suggested include the relation between content knowledge of a simple order of distinct themes *or* the absence in the strategies/methodologies suggested of the scientific knowledge necessary to the understanding of the relation between knowledges of distinct themes (C⁺)
- . The strategies/methodologies suggested include the relation between content knowledge of a complex order⁹, *or* between this and content knowledge of a simple order, within the same theme (C⁻)
- . The strategies/methodologies suggested include the relation between content knowledge of a complex order, *or* between this and the content knowledge of a simple order, of distinct themes (C⁻)

To reiterate, the possibility given by Bernstein's theory of constructing distinct instruments of analysis on the basis of the same concepts allows for comparisons between messages produced at distinct levels of the educational system. Taking as the object of study, for example, the pedagogic discourse present in the various fields that constitute the pedagogic device, the models and instruments, constructed according to the methodological procedures we referred to earlier, has allowed the development of comparative studies, including the relation between the family

and the school. Figure 5 summarizes the relations that have been the object of research, when we consider the recontextualization that can occur in the whole educational system.

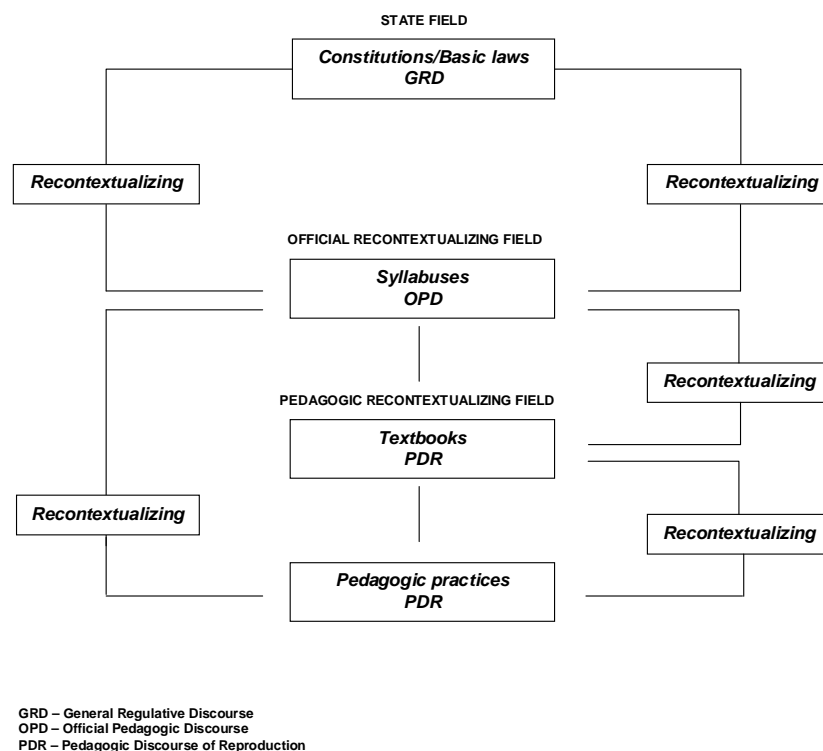


Figure 5 – Recontextualization of pedagogic discourse at various levels of the educational system

FINAL CONSIDERATIONS

We have discussed the research methodology used in the studies carried out by the ESSA Group and described the theoretical assumptions and methodological procedures that have guided the construction of models and instruments of analysis to be used in various contexts of educational research. The aim of this chapter was to make evident the extent to which Bernstein's theory has inspired the progressive development of our research and consequent construction of knowledge.

The research methodology is a mixed methodology that departs from the dichotomy between naturalistic and rationalist approaches while using characteristics associated with both qualitative and quantitative forms of inquiry. The rationalist approach in the conception of models of analysis is the consequence of a methodological option of research that we believe, may contribute to according greater consistency to the results obtained and therefore to allow the emergence of new knowledge. The use of qualitative procedures has improved the depth of the

analyses, which is crucial to the advancement of knowledge. The qualitative character of the research associated with a general methodological orientation of a rationalist character has permitted the construction of a theoretical-empirical framework to guide our research. This methodology is possible given the conceptual rigour and transference power of the theory in which it is grounded. Bernstein's theory contains characteristics that make it closer to theories of discursive areas characterized by strong grammars, having perhaps some aspects of a hierarchical structure of knowledge. We believe that if research in the area of education is to advance in the production of knowledge it must be based on a strong conceptualization.

These aspects are related to the philosophical dimension of the construction of educational knowledge. But it is also important to consider the sociological dimension, both internal (relative to the research community) and external (relative to relations with the external society). In fact, for a progressive increase of conceptualization, broadness and degree of transference of educational knowledge to occur, new knowledge and methodology must be made available and accepted by the academic community, in order that new research paths are followed. The status accorded to research and knowledge by the academic community is therefore important. The acceptance of progressively more conceptualized educational knowledge, instead of a sum of facts and ideas, depends greatly on a change of the epistemological positioning within the community of educational researchers. In fact, the trend within this community has been mostly marked by descriptive and narrative studies which, we believe, have not promoted a conceptualized evolution of educational knowledge.

If we now consider the possible acceptance of research results by society, that acceptance depends greatly on the status that is given to educational researchers and their visibility at various levels, especially to the media. It is crucial that the research results are made visible and that intervention in institutions external to the academic community take place. This principle means the need to disseminate the research, not only in contexts related to the field of knowledge production (e.g., in academic conferences), but also in contexts related to the fields of knowledge recontextualization and reproduction. Research results may then be used to justify decisions in educational policy. Another important aspect of the external sociological dimension of knowledge construction is related to the financial support given by funding institutions, which can only be justified if the research leads to knowledge advancement and to educational improvement.

One characteristic of our research is related to the implementation of a methodology which departs from the positioning that has mainly guided the academic community in the field of educational research and which represents a change of 'paradigm'. This raises questions related to the number of research groups that can share results within the same research 'paradigm', a factor that may limit the advancement of knowledge in the area we have been working. Also the small investment we have made in making public to the community external to the academic community the results obtained and the research methodology developed may limit the advancement of knowledge.

However, we believe that because we have developed a research methodology with a structure that can be applied and extended to research based on theories other than Bernstein's, we may make a contribution to the construction of knowledge in the area of research methodologies. We also believe that by making the structure of that research methodology explicit we can open up possibilities of a greater interaction of ideas and studies among researchers in the area.

This paper may provide the basis of reflection about the potentialities and limitations of the research methodology that has guided the empirical work carried out by the ESSA Group and, as a consequence, about the objectivity and value of the results. It may also contribute to a debate about methodological questions of interest to researchers doing empirical work on the basis of Bernstein's theory. The interaction of ideas in this debate may open up new paths to the development and improvement of external languages of description and, as pointed out by Bernstein, this progressive development itself may contribute to the development of the internal language of description.

NOTES

- 1 See for example Morais & Neves (2001).
- 2 Ziman (1984) considers various dimensions in the construction of science: philosophical, related to methods; psychological, related to the social relations in the scientific community; external sociological, related to relations between science and other parts of society.
- 3 See for example Morais & Neves (2001) and Neves, Morais & Afonso (2004) for extracts of instruments of analysis of modalities of pedagogic practice.
- 4 See description of instruments of analysis of subjects' performance in contexts of interaction in Morais & Neves (2001); Morais, Neves & Afonso (2005) and Morais & Neves (2006).
- 5 See Morais, Neves & Afonso (2005) and Morais & Neves (2006) for the application of this model in the context of teacher education, and Morais & Neves (2001) for the contexts of scientific learning.

6 Intermediate descriptors are possible.

7 See Morais & Neves (2001) for the sociological research model of methodology that illustrates the relation between the internal and external languages of description, by highlighting the characteristics of Bernstein's theory.

8 Content knowledge of a simple order refers to generalized facts or to concrete concepts which, according to Cantu and Herron (1978), "are ones that have defining attributes and examples that are observable" (p. 135).

9 Content knowledge of a complex order refers to abstract concepts which, according to Cantu and Herron (1978), are concepts "that do not have perceptible instances or have relevant or defining attributes that are not perceptible" (p. 135).

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